> based samples, the wafer can be scored with waxes, tapes or other hydrophobic materials in the spaces between the arrays, forming cells that act as test wells. The cells thus contain liquid applied to an array by resisting spillage over the barrier and into another cell. If the sample contains a non-aqueous solvent, such as an alcohol, the material is selected to be resistant to corrosion by the solvent.

As is clear from Col. 4, lines 24-30 of Rava et al., the "hydrophobic materials" referred to in the quoted section above are a raised "physical barrier" on the surface of the array, such that "an array of biological chips in which the probe array of each chip is separated from the probe array of other chips by a physical barrier resistant to the passage of liquids and forming an area or space, referred to as a 'test well...'" In contrast, in the claimed invention, the "hydrophilic regions [are] separated from other hydrophilic regions by a hydrophobic region *which is part of said planar surface* ..." The hydrophobic regions are not raised with respect to the substrate surface, as is described in Rava et al. Rather, due to their hydrophobicity, the hydrophobic regions act to separate fluid associated with chips from other chips on the planar surface. As Rava is directed to forming "test wells," (see Col. 4, lines 24-30) there is no suggestion of having the hydrophobic region as part of the planar surface of the substrate.

Rava et al., and the other cited reference, also do not disclose that "the chip [has] a hydrophilic surface which faces said planar surface when the chip is disposed on the substrate ...." It is the interaction of the hydrophilic surfaces on the chip and the substrate (like to like) which aids in keeping the chip in place. Rava et al., being directed to "test wells," does not disclose or suggest such a surface on the chip.

Rava et al. also do not disclose or suggest "several discrete hydrophilic regions which are part of a planar surface of the substrate ..." The Examiner contends that Rava et al.'s test wells "comprise hydrophilic regions because they can accommodate aqueous sample..." Because the hydrophilic regions in the claimed invention act to hold the chip in place, and Rava does so by placing the chip in a test well (formed by raising a barrier in the embodiment discussed in col. 8, lines 35 et seq.) there is no suggestion of such hydrophilic regions in Rava et al.

The Examiner states that Shivashankar et al. "teaches grafting an array of particles coated with ... a biomolecule, on to localized positions of a semiconductor substrate (biochip)." However, the semiconductor substrate in Shivashankar et al. is not

equivalent to the claimed chip, but rather to the "substantially planar substrate." A chip disposed on a "semiconductor substrate" is not disclosed or suggested in Shivashankar et al. Thus, there is no suggestion to make the combination the Examiner advocates. Moreover, Shivashankar et al. is directed to:

> Applicants' discovery that unexpectedly, a substrate in contact with a colloidal dispersion comprising insoluble particles coated with a molecule can be impinged with laser beam to form patterns of melting and ablation on the substrate to which the insoluble particles can adhere without effecting the activity of the molecule, particularly biomolecules. [col. 9, lines 20-30]

Thus, there is no suggestion to combine Shivashankar et al. particles with the chip/semiconductor in Rava et al. because in Rava et al. the chip is immobilized on the semiconductor by trapping it in a physical well, and in Shivashankar et al., particles are immobilized on a semiconductor with a laser as described above. One would select one method of immobilization or the other – using both would be unnecessary, and the combination, therefore, is taught away from.

In conclusion, all rejections have been overcome, and allowance is respectfully requested.

Respectfully Submitted,

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The Commissioner is hereby authorized to charge any fees due in connection with this submission and not otherwise covered by payment included herewith or to credit any overpayment, to Deposit Account No. 502088.